

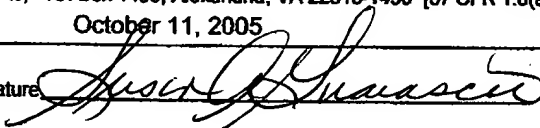
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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional)	
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		09/634,312	August 8, 2000
		First Named Inventor	
		Mikio Kurihara	
		Art Unit	Examiner
		2871	Thoi V. Duong
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p>I am the</p> <p><input type="checkbox"/> applicant/inventor.</p> <p><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)</p> <p><input checked="" type="checkbox"/> attorney or agent of record. Registration number <u>45,747</u></p> <p><input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____</p> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.</p> <p><input type="checkbox"/> *Total of _____ forms are submitted.</p>			

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kurihara et al. Examiner: Duong, Thoi V  
Serial No.: 09/634,312 Art Unit: 2871  
Filed: August 8, 2000 Docket No.: JP919990161US (8728-410)  
On: TOUCH SENSOR TYPE LIQUID CRYSTAL DISPLAY AND LIQUID  
CRYSTAL DISPLAY

REASONS FOR PRE-APPEAL BRIEF REQUEST FOR REVIEW

A Notice of Appeal is being filed following the Final Office Action mailed on July 11, 2005 and the Advisory Action mailed on September 27, 2005. This paper is being filed in conjunction with a Pre-Appeal Brief Request for Review to alert the Examiner to issues that may be resolvable by review.

The Examiner has rejected all claims of the above-referenced application in a Final Office Action dated July 11, 2005, and maintained said rejections in an Advisory Action dated September 27, 2005. Claims 1-20 are currently pending in this application.

In accordance with the Office Action, Claims 1, 2, 5-12, 19 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,852,487 to Fujimori et al. (the '487 or Fujimori) in view of U.S. Patent No. 5,499,128 A to Hasegawa et al. (the '128 or Hasegawa). Applicants' have respectfully traversed the rejections, and submitted that Fujimori in view of Hasegawa does not render Claims 1, 5, 10 and 12 obvious.

There are two main points of contention. The first point relates to a fair determination of the actual teachings of the Hasegawa reference, and the second point relates to the requisite motivation to combine the disputed teaching of Hasegawa with the Fujimori reference.

Applicants' pending Claim 1 recites, *inter alia*, "A touch sensor type liquid crystal display comprising ... a plurality of columnar gap controlling spacers ... each

of the spacers having two members ... **wherein a cross-section of each spacer ... is no larger in area than either of said first and second contact surfaces**". Thus, Claim 1 sets forth that the spacers are columnar, have two members, and that the cross-sectional area at the contact section between the spacer members is no larger than the contact area between either spacer member and its respective substrate.

The '487 patent reference to Fujimori et al. is generally directed to a touch-sensing LCD, but fails to teach or suggest columnar spacers "wherein a cross-section of each spacer ... is no larger in area than either of said first and second contact surfaces", as recited in Claim 1.

The '128 patent reference to Hasegawa et al. shows an LCD device without any provision or support for a touch-sensor capability. Contrary to the Examiner's assertion (see Action at p.4, lines 9-11), although Hasegawa may show columnar spacers with relatively thin mid-sections, there is no teaching or suggestion that both contact surfaces have a contact **area** greater than the **area** at the midsection. The Examiner's comparison of Hasegawa's "width L2" with "width L1" is inapplicable because the relationship between the outer widths does not necessarily correspond to the relationship between the associated areas, particularly where the area at the contact portions is significantly reduced by an inner recessed portion or void as shown by the reference. It is noted that Figures 12 and 13 of Hasegawa may be drawn from a different depth than Figure 11, for example, such that the enclosed void at the contact surfaces is obscured.

I. What does Hasegawa fairly teach?

In Applicants' prior response dated April 25, 2005, the Examiners' reliance on Hasegawa at col. 23, line 61 through col. 24, line 20, was discussed. This text of Hasegawa refers to Figures 12 and 13 (Hasegawa's "fourth modification"), and the Examiner relied on it for the proposition that the cross-section of each spacer is

no larger in area than either of the contact surfaces. Applicants' maintain that this reliance on Hasegawa et al. is misplaced.

Figures 10-11 of Hasegawa (Hasegawa's "third modification"), as somewhat described at col. 22, line 65 through col. 23, line 60, and Figures 17-21 of Hasegawa, as somewhat described at col. 24, line 64 through col. 27, line 3, show a recessed portion or void (sometimes labeled 143) at the top contact surface of the spacers, which may include liquid crystal. The recessed portion is not consistently mentioned or labeled even in the views where it is clearly shown. The recessed portion causes a significant reduction in the **contact area**, even though the diameter of the top around the recessed portion may be wider than the midsection of the spacer.

The above-mentioned citation to Hasegawa at col. 23, line 61 through col. 24, line 20, indicates that in the so-called fourth modification, "the columnar spacer was modified ... and ... comprises ... a resin layer ... formed on the center portion of the top surface of the columnar spacer 112 ... subjecting the spacer 112 to developing by using a developing agent to each the edge portion of the surface and the side wall of the columnar spacer 112. The resin and the developing agent used in the fourth modification **similar to that used in the third modification** ... the thinnest portion noted above corresponds to L2."

There are apparent grammatical errors in this text of Hasegawa that render it confusing. Specifically, the text "to each the" is improper. This text may have been intended to read "to reach the", "to etch the" or "to each of the". The first two possibilities lend support to Applicants' argument that the so-called fourth modification does include an area of resin or other non-spacer material at the top of the spacer.

Thus, the "third modification" refers to that of Figures 10 and 11, clearly having the unlabelled recessed portion or void. The text of Hasegawa states that the structure of the fourth modification, which includes Figure 12, is "similar to that used in the third modification". Nowhere does the text of Hasegawa specify that

the recessed portion or void has been replaced for greater contact area in the "fourth modification". This is to be expected since Hasegawa was not concerned with the added loads of touch-sensors, for example, in a non-touch-sensor type of display.

Thus, Applicants' respectfully submit that even if the width of the midsection of Hasegawa's spacer is thinner than the width of the top portion, Hasegawa fails to teach the contact area at said midsection being no greater than the contact area at the top portion, but instead shows a recessed portion that significantly reduces the contact area at the top portion (see *also, e.g.*, Hasegawa at col. 26, line 65 through col. 27, line 3).

II. Was there sufficient motivation to combine Hasegawa?

Even if the Examiner's interpretation of Hasegawa is ultimately upheld, there would remain the issue of whether there was sufficient motivation to combine the spacers of Hasegawa with the touch-sensor LCD of Fujimori at the time of Applicants' invention.

Although Fujimori is directed to touch-sensor type LCDs and analogous art, Hasegawa is merely directed to display-only type LCDs. Thus, Hasegawa et al. not only failed to teach the advantages of any particular spacer designs for touch-sensing, but completely failed to recognize the need for spacers that could withstand the forces of touch-sensing while isolating the deformation to the center of the spacers and away from the contact surfaces with the substrates, which is a desired advantage of Applicants' claimed invention.

Thus, even if Hasegawa does show spacers having features comparable to those of Applicants, Hasegawa offered no motivation to combine such spacers with a touch-sensor type LCD. That is, one of ordinary skill in the pertinent art at the time of Applicants' invention would not have found motivation in Hasegawa to combine Hasegawa's display-only type LCD spacers with the touch-sensor type


LCD of Fujimori. There was no suggestion in Hasegawa that such spacers would even hold up to touch-sensor usage, much less provide an advantage.

Fujimori did not provide the requisite motivation either. Fujimori is directed to touch-sensor type LCDs, and the Examiner has correctly pointed out that Fujimori does show one columnar embodiment. However, the columnar embodiment of Fujimori used spacers with a robust mid-section, potentially made more robust to withstand touch-sensor usage. Fujimori failed to teach or suggest spacers with a narrow midsection. In addition, Fujimori failed to recognize not only the effect of localizing deformation in the mid-section of the spacers, but also failed to recognize the need to reduce stresses at the spacer to substrate interfaces.

Therefore, neither Hasegawa nor Fujimori provided sufficient motivation to combine the spacers of Hasegawa's display-only type LCD with the columnar embodiment touch-sensor type LCD of Fujimori. In addition, it is respectfully submitted that such motivation would not have been found by one of ordinary skill from the state of knowledge existing in the pertinent art prior to Applicants' discovery.

Therefore, the '128 to Hasegawa et al. fails to overcome the deficiencies of either the '487 to Fujimori et al. or the Yanawana reference (JP 2000-227596) with respect to the recitations of Applicants' claimed invention. For example, the cited references and references of record in this case, whether taken alone or in combination, fail to fairly teach or suggest a "touch sensor type liquid crystal display ... wherein a cross-section of each spacer parallel to the plane of a substrate at said intermediate point is no larger in area than either of said first and second contact surfaces", as recited in Applicants' Claim 1.

Respectfully submitted,

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